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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,057	08/25/2008	Oemer Uensal	12834-00019-US	6194
23416	7590	07/29/2011	EXAMINER	
CONNOLLY BOVE LODGE & HUTZ, LLP		STANLEY, JANE L		
P O BOX 2207		ART UNIT		PAPER NUMBER
WILMINGTON, DE 19899		1767		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/585,057	UENSAL ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	JANE L. STANLEY	1767	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 06 August 2007.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 22-44 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 22-44 is/are rejected.  
 7) Claim(s) 22, 24-25, 28, 30 and 40 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>20060630</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|   | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION*****Claim Objections***

**Claims 22, 24, 28, 30 and 40** are objected to because of the following informalities: the claims are missing proper punctuation including commas, semicolons, etc. As an example, claim 22 recites "the steps of" and should instead recite --the steps of:--. Appropriate correction is required.

**Claim 25** is objected to because of the following informalities: "(by acidimetry" is missing a closing parenthesis. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claims 24-25 and 31** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Regarding claim 24**, the claim appears to be an incomplete sentence and as such is indefinite. It is further unclear if the claim is intended to be a Markush claim.

**Regarding claim 25**, the parenthesis renders the claim indefinite and must be removed. It is unclear if the text within the parentheses is included in the claim and further limits the subject matter of the claim, or whether it is an aside to the claim and is not further limiting. For the purpose of further examination, it is

taken that the text within the parenthesis further limits the claim. Appropriate correction is required.

**Regarding claim 31**, it is unclear what is meant by “and/other step B”. It is assumed this was intended to recite ‘and/or step B’. Correction is requested.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 22-44** are rejected under 35 U.S.C. 102(b) as being anticipated by Calundann et al. (WO 02/081547, published 17 October 2002; see US 7,235,320 for English language equivalent citations).

**Regarding claims 22-23 and 27-31**, Calundann teaches a proton-conducting polymer membrane based on polyazoles and therefore meets the instantly claimed proton-conducting polymer membrane based on polyazoles.

Regarding the method limitations recited in **claims 22-39**, the Examiner notes that even though a product-by-process is defined by the process steps by which the product is made, determination of patentability is based on the product itself. If the product in a product-by-process claim is the same as or obvious from

a product of the prior art, the claim is unpatentable even though the prior product was made by a different process (see *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985); see also *In re Pilkington*, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969); see also *In re Marosi*, 710 F2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983); MPEP 2113).

In addition, Calundann teaches the proton-conducting polymer membrane based on polyazoles is obtained by B) dissolution of a solid prepolymer in a polyphosphoric acid (instant step A), C) heating the solution obtained in B to temperatures up to 300 °C under inert gas (instant step B), D) forming a membrane on a support using the solution obtained in C (instant step C), and E) treatment of the membrane formed in D until it is self supporting (instant step D) (col 2 ln 22-30). Calundann teaches a solution or a dispersion/suspension (col 5 ln 9-10), teaches the instantly claimed azole units (claim 28) (see col 5-7), instantly claimed polymers (claim 29) (see col 8 ln 64-67) and instantly claimed benzimidazoles (claim 30) (see col 9 to col 12), and also teaches polymer blends (col 9 ln 1-6).

**Regarding claims 24-26 and 32,** Calundann further teaches the polyphosphoric acid having an assay calculated as P<sub>2</sub>O<sub>5</sub> (acidimetric) of at least 83% (col 5 ln 4-8) and teaches viscosity is adjusted by admixture with phosphoric acid (col 11 ln 60-64).

**Regarding claims 33-36,** Calundann further teaches the membrane produced is treated at elevated temperatures in the presence of moisture for a sufficient time until the membrane is self-supporting so that it can be detached

from the support without damage, wherein the treatment is carried out in the presence of water and/or water vapor at temperatures from 20 °C to 90 °C (col 12 ln 50-64) for a time of from 1 to 200 hours (col 13 ln 34-36).

**Regarding claims 37-39,** Calundann further teaches the membrane can be formed directly on the electrode and that the membrane no longer has to be self-supporting (col 15 ln 37-44). Calundann teaches the membrane thickness is from 15 to 3000 µm (col 13 ln 1-3).

**Regarding claims 40-44,** Calundann teaches an electrode having a proton-conducting polymer coating based on polyazoles and therefore meets the instantly claimed electrode having a proton-conducting polymer coating based on polyazoles.

Regarding the method limitations recited in **claims 40-44**, the Examiner notes that even though a product-by-process is defined by the process steps by which the product is made, determination of patentability is based on the product itself. If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process (see *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985); see also *In re Pilkington*, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969); see also *In re Marosi*, 710 F2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983); MPEP 2113).

In addition, Calundann teaches the electrode having a proton-conducting polymer coating based on polyazoles is obtained by B) dissolution of a solid

prepolymer in a polyphosphoric acid (instant step A), C) heating the solution obtained in B to temperatures up to 300 °C under inert gas (instant step B), D) application of a layer to an electrode using the solution obtained in C (instant step C), and E) treatment of the membrane formed in D (instant step D) (col 15 ln 45-63). Calundann teaches the coating thickness from 2 to 3000 µm (col 15 ln 61-62) and teaches a membrane-electrode unit (col 15 ln 64-65) and PEM fuel cells (abstract; claims).

**Claims 22-44** are rejected under 35 U.S.C. 102(b) as being anticipated by Calundann et al. (WO 02/088219, published 7 November 2002; see US 7,384,552 for English language equivalent citations).

Calundann teaches proton-conducting polymer membranes based on polyazoles and further teaches electrodes and fuel cells comprising the proton-conducting polymer membranes (abstract; col 2; col 14-15). Therefore Calundann teaches the instantly claimed proton-conducting polymer membrane based on polyazoles (claims 22-39) and instantly claimed electrode having a proton-conducting polymer coating based on polyazoles (claims 40-44).

Regarding the method limitations recited in **claims 22-44**, the Examiner notes that even though a product-by-process is defined by the process steps by which the product is made, determination of patentability is based on the product itself. If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product

was made by a different process (see *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985); see also *In re Pilkington*, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969); see also *In re Marosi*, 710 F2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983); MPEP 2113).

In addition, Calundann further teaches the claimed method steps (col 2; col 11-12), polymers (col 8), temperatures (col 2, col 11-12), times (col 12), coating/membrane/layer thicknesses (col 12, col 15), polyphosphoric acid (col 2, col 3, col 11), azoles (col 4-6), benzimidazoles (col 7-11), electrode forming steps (col 15), etc.

### ***Cited Art of Record***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Specifically noted are WO 03/092090, WO 03/096464 and WO 03/074597, applicable as rejections under 35 U.S.C. 102(a), which are directed to proton-conducting polymer membranes comprising polyazole polymers and to electrodes and fuel cells comprising said polymer membranes.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where

the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

**Claims 22-44** are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over **claims 28-62** of copending Application No. **10/584,965**. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of both the instant and copending application are directed to proton-conducting polymer membranes based on polyazoles, electrodes having a proton-conducting polymer coating based on polyazoles, membrane electrode units and fuel cells. Furthermore, the claims of both the instant and copending applications are also directed to substantially the same organic phosphonic anhydrides, polymers, azoles, and substantially similar method steps for obtaining said proton-conducting polymers and for obtaining said electrodes having said proton-conducting polymer coating.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JANE L. STANLEY whose telephone number is (571)270-3870. The examiner can normally be reached on Mon.-Thurs. 7:30 am - 5 pm, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/PETER F GODENSCHWAGER/  
Examiner, Art Unit 1767

/JLS/